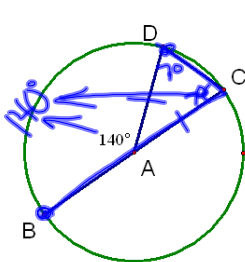
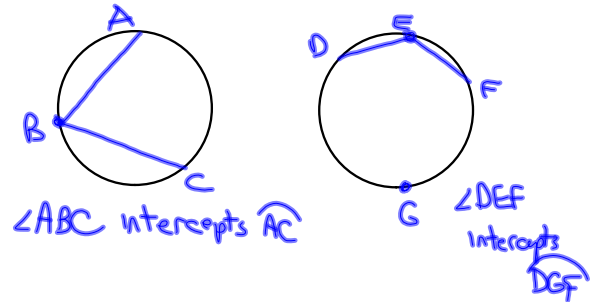


# 10-4 Use Inscribed Angles and Polygons

Inscribed angle--angle whose vertex is on the circle and whose sides contain chords of the circle



Name the inscribed angle in the picture.

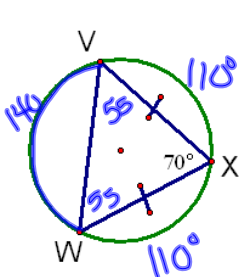
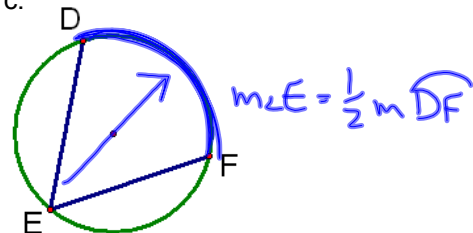
What arc does it intercept?

What is the measure of the intercepted arc?

What is the measure of the inscribed angle?

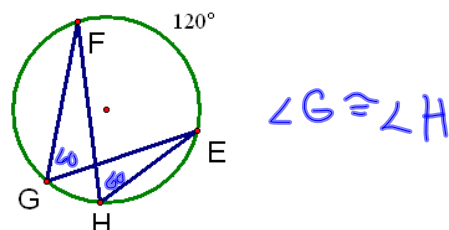
$\angle DCA$   
 $\widehat{BD}$   
 $140^\circ$   
 $70^\circ$

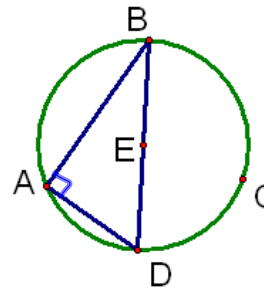
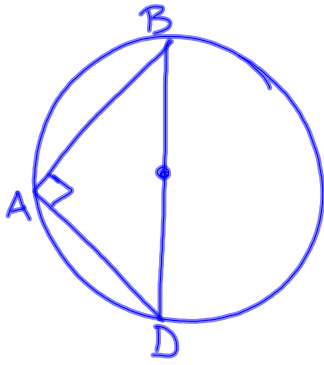
Theorem 10-7-- The measure of an inscribed angle Theorem The measure of an inscribed angle is  $= \frac{1}{2}$  the measure of the intercepted arc.



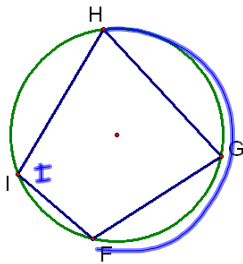
$m\widehat{VW} = 140^\circ$   
 $m\angle W = 55^\circ$   
 $m\widehat{WX} = 110$

Theorem 10.8--If 2 inscribed angles intercept the same arc, then the angles are congruent.





Theorem 10-9--If a right triangle is inscribed in a circle, then the hypotenuse is a diameter of the circle. Conversely, if one side of an inscribed triangle is a diameter of the circle, then the triangle is a right triangle and the angle opposite the diameter is the right angle.



$$m\angle I = \frac{1}{2} m\widehat{HGF}$$

$$m\angle G = \frac{1}{2} m\widehat{HIF}$$

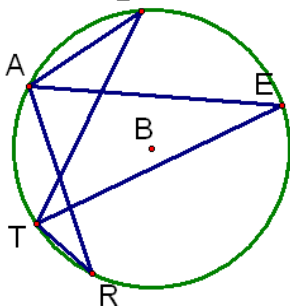
Inscribed Quadrilateral

$$m\angle I + m\angle G = \frac{1}{2}(360)$$

Theorem 10-10--A quadrilateral is inscribed in a circle iff its opposite angles are supplementary

$$\begin{aligned} \angle I + \angle G &\text{ are suppl.} \\ \angle H + \angle F &\text{ are suppl.} \end{aligned}$$

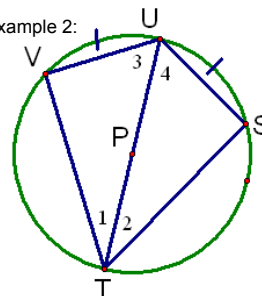
Example 1: L



$$\begin{aligned} m\widehat{AT} &= 60^\circ \\ m\widehat{LE} &= 76^\circ \\ m\widehat{ER} &= 134^\circ \end{aligned}$$

$$\begin{aligned} \text{Find } m\angle L &= \\ m\angle E &= \\ m\angle R &= \\ m\angle LAE &= \\ m\angle EAR &= \end{aligned}$$

Example 2:



$\overline{TU}$  is the diameter

$$m\angle 2 = x + 9$$

$$m\angle 4 = 2x + 6$$

$$\text{Find } m\angle 1 =$$

$$m\angle 2 =$$

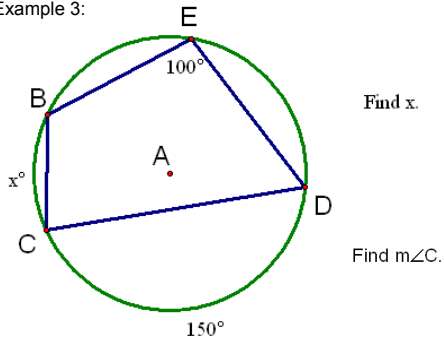
$$m\angle 3 =$$

$$m\angle 4 =$$

$$m\widehat{US} =$$

$$m\widehat{ST} =$$

Example 3:



HW p676  
#s 3-15